

SCIENCE Seventh Grade

LIFE SCIENCE STANDARDS

1.0 Cell Structure and Function

The student will investigate the structure and function of plant and animal cells.

| Key | Reporting Category | | PLT ACTIVITY |
|-----|--------------------|--|--------------|
| D | | Design and construct a hierarchy among cells, tissues, organs, and systems. | N/A |
| A | CS | Determine the relationships among cells, tissues, organs, and systems given a diagram and identify the function of organ systems. | N/A |
| A | CS | Recognize basic structures that most cells share (i.e., nucleus, cytoplasm, and cell membrane). | N/A |
| A | CS | Distinguish between plant and animal cells. | N/A |
| A | CS | Identify major cell organelles and their functions. | N/A |
| D | | Sequence a series of diagrams depicting the stages of cell division in plant and animal cells. | N/A |
| A | CS | Sequence a series of diagrams depicting the movement of chromosomes during mitosis. | N/A |
| I | | Design models to illustrate how materials move between cells and their environment. | N/A |
| A | CS | Predict the movement of substances through osmosis or diffusion across the cell membrane, given solutions of different concentrations. | N/A |

3.0 Food Production and Energy for Life

The student will study the basic parts of plants, investigate how plants produce food, and discover that plants and animals use food to sustain life.

| | | | |
|---|----|---|---|
| D | | Compare and contrast photosynthesis and respiration. | N/A |
| A | FP | Determine what plants need to make food. | 27 Every Tree ... (var) – p. 117 41 How Plants Grow – p. 179 42 Sunlight and Shades p.182 |
| A | FP | Identify photosynthesis as the food making process in plants. | 28 Air Plants – p. 120 41 How Plants Grow – p. 179 42 Sunlight and Shades p.182 |
| A | FP | Identify the reactants and products of photosynthesis and respiration. | 28 Air Plants – p. 120 |
| D | | Relate the processes of photosynthesis and respiration to appropriate cellular organelles. | N/A |
| A | FP | Associate the processes of photosynthesis and respiration with appropriate cellular organelles. | N/A |
| D | | Diagram and explain how oxygen and carbon dioxide are exchanged between living things and their environment. | 28 Air Plants – p. 120 |
| A | FP | Select the structures that animals use to obtain oxygen. | N/A |
| A | FP | Classify animals according to their means of obtaining oxygen. | N/A |
| A | FP | Select the illustration that depicts the movement of oxygen and carbon dioxide between living things and their environment. | 28 Air Plants p 120 |
| A | FP | Interpret a diagram depicting the oxygen-carbon dioxide cycle. | 28 Air Plants – p. 120 |

KEY

I = Introduced D = Developing A = State Assessed M = Mastered

REPORTING CATEGORY

CS = Cell Structure & Function FP = Food Production & Energy HR = Heredity & Reproduction
AC = Atmospheric Cycles SP = Structure & Properties

Note: "A" indicates the state curriculum (CRT) assessment only.
All the skills ("I"... "D"... "A"... "M") are addressed in the classroom assessment.

4.0 Heredity and Reproduction

The student will understand the basic principles of inheritance.

| | | | |
|----------|-----------|--|---|
| A | HR | Match a flower part with its reproductive function. | N/A |
| A | HR | Distinguish between sexual and asexual methods of reproduction. | 43 Have Seeds, ... (<i>enrich</i>) – p. 185 |
| D | | Recognize that genetic information is passed from parent to offspring during reproduction. | N/A |
| A | HR | Recognize advantages and disadvantages of sexual and asexual reproduction. | N/A |
| A | HR | Recognize a variety of pollination methods and associated floral adaptations. | N/A |

Earth Science Standard

8.0 Atmospheric Cycles

The student will investigate the relationships among atmospheric conditions, weather, and climate

| | | | |
|----------|-----------|---|-------------------------------------|
| D | | Explain how conditions, such as the amount of precipitation, temperature, and wind speed affect the water cycle. | N/A |
| A | AC | Determine how temperature affects evaporation and condensation in the atmosphere. | 44 Water Wonders – p. 188 |
| A | AC | Identify the detailed features of the water cycle given a diagram (i.e., evaporation, condensation, precipitation, run-off, and transpiration). | 44 Water Wonders – p. 188 |
| D | | Record and analyze meteorological data to predict weather patterns. | 29 Rain Reasons (assessment) p. 123 |
| D | | Use diagrams to demonstrate how atmospheric winds and ocean currents affect weather and climate. | N/A |
| A | AC | Analyze data and make predictions about weather given a scenario. | N/A |
| A | AC | Interpret weather data using a weather map. | N/A |
| I | | Explain the impact of catastrophic events on climate (e.g., volcanic eruption). | 84 The Global Climate – p. 363 |
| I | | Research careers related to meteorology. | N/A |

Physical Science Standard

12.0 Structure and Properties of Matter

The student will investigate the characteristic properties of matter.

| | | | |
|----------|-----------|---|--|
| D | | Differentiate among elements, compounds, and mixtures. | N/A |
| A | SP | Distinguish between elements, compounds, and mixtures (i.e., Na, Cl, NaCl, C, O ₂ , CO ₂ , H ₂ , and H ₂ O). | N/A |
| D | | Describe the particle arrangement associated with different states of matter. | N/A |
| A | SP | Compare the motion and arrangement of molecules in solids, liquids, and gases. | N/A |
| D | | Identify the mass, volume, density, boiling point, melting point, and solubility of a given substance. | N/A |
| D | | Measure and/or calculate the mass, volume, density, and temperature of a given substance. | 37 Reduce, Reuse, Recycle p. 159 38 Every Drop Counts p. 163 |
| A | SP | Determine the measurable properties of matter and appropriate metric units (i.e., weight, mass, volume, density, size (length, width, height, and temperature). | 37 Reduce, Reuse, Recycle p. 159 38 Every Drop Counts p. 163 67 How Big is Your Tree? p. 284 |
| I | | Obtain information about an element with the aid of a periodic table. | N/A |
| A | SP | Classify substances as elements or compounds from their symbols or formulas. | N/A |

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